

# RICKETTS (B.M.)

## Dislocation and Double Fracture of the Upper Third of the Humerus.

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Read before the Cincinnati Academy of Medicine, June 4, 1894.

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BY B. MERRILL RICKETTS, M.D.

CINCINNATI, OHIO.

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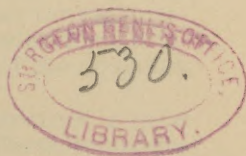
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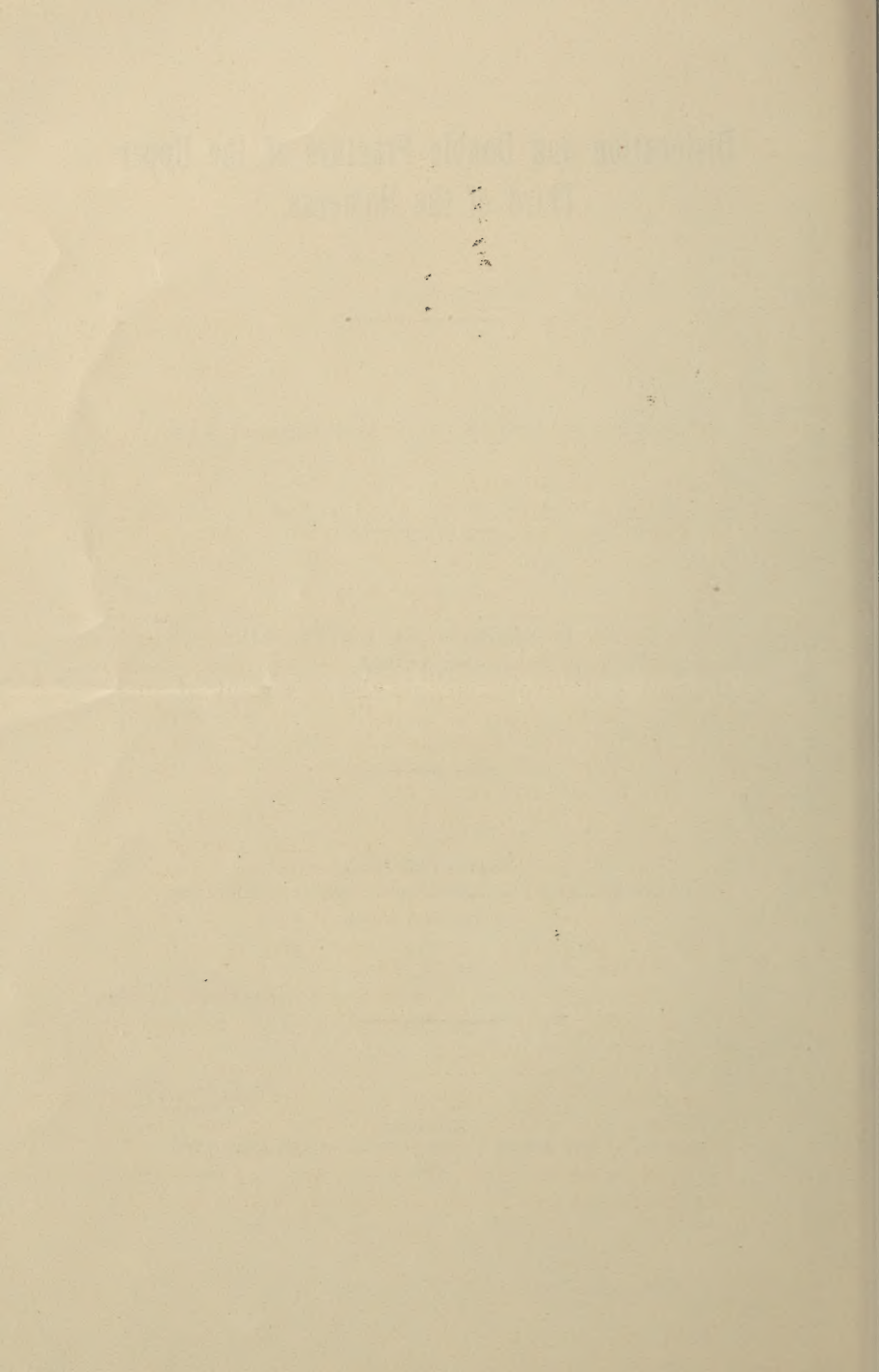
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## DISLOCATION AND DOUBLE FRACTURE OF THE UPPER THIRD OF THE HUMERUS.

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For the surgical history of this unfortunate state of affairs I can not do better than to refer those who wish to inform themselves upon the subject, to Dr. McBurney's paper and report of a case of this kind published in the *Annals of Surgery*, April, 1894. This is the most complete and concise article that I have read. It is more especially interesting as he offers the means of a plan of reducing the disarticulation which he himself was the first to devise and execute. This was done July 1, 1893, and has been the means of revolutionizing the treatment of this class of cases when the condition of the patient will permit. That no surgeon thus far reported has met with more than five cases shows that the accident is exceedingly rare. The cause is obscure, the statements of the injured being very unreliable.

It seems probable that in the larger number of instances the dislocation is produced by the usual mechanism—that is through violent sudden abduction of the arm; as in a fall upon the hand or elbow, and the head of the bone having become fixed in its new situation that fracture takes place through continued abduction, combined perhaps with force rotation, the edge of the glenoid cavity or of the acromion acting as a fulcrum.

The complication has also been produced a good many times by the surgeon in his efforts to reduce a simple dislocation. The dislocation has been usually subcoracoid, occasionally subglenoid and very rarely subspinous. Unless there is very much swelling there should not be much difficulty in mak-

ing a diagnosis, as the head of the bone can be felt and crepitus defined.

The treatment formerly practiced was either immediate reduction or reduction by using the arm as a lever after the bones have become firmly united.

Thirty-six of the eighty cases reported were reduced, while forty-four were failures and as six of the eighty died as the result of traction, rotation, etc., it will be seen that any attempt at reduction by any means other than open arthrotomy is exceedingly dangerous.

The fracture in the 117 cases reported was in 69 at the surgical neck; in 27 at the anatomic neck; at the "neck" in 11; both anatomic and surgical neck were fractured in 6 cases; 1 case was comminuted, and the 'upper part' of the humerus was fractured in 3, "thus showing the line of fracture to be varied."

The very unsatisfactory results from former treatment, together with a mortality from manipulation alone being almost as high as that of hip joint, amputations should convince the surgeon and practitioner in general that other means should be adopted.

#### PLANS OF TREATMENT.

1. Immediate reduction by direct pressure upon the head.

2. Manipulation after union of fracture.

3. Arthrotomy and reduction of the head.

4. Resection of head of humerus.

Immediate reduction by direct pressure upon the head should be attempted but without extension upon the arm, even though it is known that the periosteum has not become detached. If the fragment is short, reduction may be accomplished but perseverance should not be indulged in.

2. Manipulation after union of fracture being so dangerous and unsatisfactory must, I believe, be relegated. Arteries, nerves and veins may be injured to an irreparable degree, beside the loss of a life may be the result. The present mortality being something like 15 per cent.

Resection of the head of the humerus should be made in old standing cases of dislocation causing pain and the loss of the use of the arm; in cases where reduction can not be accomplished by any means at any time and especially in young subjects. As a rule the arm is more useful after the resection of the head in adult life than where the head is allowed to remain intact. It is invariably better after resection in young subjects.

Arthrotomy and reduction of the head is surely the most rational means of treating this complicated injury if age or the condition of the patient following the injury will permit. The sooner after the injury the operation can be made the greater are the chances for a reduction and a useful arm.

If the dislocation is reduced the fracture can be more satisfactorily treated, especially if the fracture does not pass directly through the head. If reduction can not be accomplished by means of an arthrotomy, resection of the head should be made, as reduction could not in all probability be made later or by any means, and as the head left in these dislocations is a source of great pain and annoyance it is all the more advisable that it should not be allowed to remain if reduction can not be accomplished.

*Case 1.*—Mr. D., age 49; white and slender; in a fair physical condition; fell from a trestle fourteen feet upon the hard ground, receiving the blow upon the left shoulder, at noon time on Feb. 21, 1894. I examined the patient at 5 P.M. on the same day, finding a subcoracoid dislocation together with what afterward proved to be a fracture of both the surgical and anatomic neck. Crepitus could be felt, thus satisfying me of at least one fracture. The head could be plainly felt beneath the much swollen tissue. I at once decided to take him to my private hospital; night overtaking me I gave the patient morphia to relieve the pain about the shoulder until the following day. On the morning of the following day the swelling was much more extensive and the temperature was  $101\frac{1}{2}$  F. There was also great tenderness, pain and discoloration over the entire upper arm, shoulder and scapular region.

Chloroform was given and an attempt made at reduction, first by manipulation of the head without traction. Then

with both manipulation and traction, the traction not having been made to any considerable degree. Two or three attempts proving fruitless I decided to discontinue all efforts and await developments.

I could not at this time satisfy myself that more than one fracture existed; in fact I did not suspect the second one being present; however, I believed that there was a fracture of acromion, which was afterward found not to exist. The upper arm was placed in metallic splints and abducted. His physical condition was at a low ebb, the shock having been severe. Indeed it was a question as to whether or not gangrene would not result. While I informed the family of the gravity of the case, I suggested that arthrotomy could be made at any time his condition would permit.

The pain continued to be severe, the temperature 102 and the injured parts cold, swollen and very much discolored. This state of affairs existed for two weeks in spite of the application of dry heat. Morphia was used freely for the relief of pain. At the end of the fifteenth day the depression was so great that the head could not be raised from the pillow. It was not until the end of the sixth week that the patient could sit up in bed.

It was at the end of this time Dr. McBurney's article appeared in the *Annals of Surgery*. I immediately proceeded to have a hook made and prepared to at least attempt an arthrotomy, believing that firm bony union had resulted, especially as I had kept the patient under the influence of mercury during the first three weeks, a rule I usually adopt in cases of fracture in long bones. Realizing that within this short time the glenoid cavity could be practically obliterated by newly organized tissue, I believed the end justified the means, so proceeded to make the arthrotomy under the influence of chloroform.

An incision three inches long, one and one-half inches below and parallel to the clavicle enabled me to reach the head of the humerus without difficulty. Both the anatomic and surgical necks were found to be fractured and ununited. The surface of the head had become adherent with the soft parts which were greatly infiltrated with a dark bloody serum.

Non-union of the fragments prevented further operative procedure. The wound was closed with silkworm sutures, the arm brought to the chest and the lower placed at a right angle to the upper arm and firmly secured with adhesive strips. Much comfort was experienced in the change of position of the arm and the patient left for his home at the end of ten days, hoping that the country air would add to chances of complete union of the fragments. During his five weeks absence from the city he has gained in weight and general appearance, but has suffered a great deal

except during the last week when he has been practically free from pain. The question now is, Should the head have been resected at the time of the attempted arthrotomy? As the indications for the resection of the head of the humerus in irreducible luxations forms the topic of another paper, which I will soon present, I do not care to further occupy your time.





